TECHNICAL BOOK REVIEW INDEX

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ANTHONY A. MARTIN, *Editor*

Volume 27 **June, 1961** **No. 6**

THE purpose of the Technical Book Review Index is primarily to identify reviews in current scientific, technical, and trade journals; secondarily, when feasible, to quote from these reviews. In the evaluation of scientific and technical books, reviews constitute the best existing source of information. The service of the Technical Book Review Index is thus in the field of evaluation, rather than in competition with existing publications which announce new and forthcoming books, list books by subjects, or supply bibliographic information. Each quotation immediately follows the name of the journal from which it is taken. Obviously, these brief extracts, detached from the context, must not be accepted as conclusive. Except for the correction of obvious errors, the bibliographic information is as given in the reviews. It is, therefore, in many cases incomplete and in some cases probably inaccurate.

Advances in analytical chemistry and instrumentation. v.1; edited by Charles N. Reilley. 445p. 1960. Interscience Publishers, New York, $12.

Analytical chemistry, April 1961, p.77 A. 1⅔ col.

"First of a series of volumes to appear annually. The editor hopes that these will help to bridge the gap between the periodical literature . . . and the monograph which all too often is many years in preparation . . . Consists of seven articles written by recognized authorities and comes close to realizing the expectations of the editor. Although the topics are all timely, many of the authors apparently finished their manuscripts in 1959. The appearance of the book nearly two years later does not eliminate the time gap which was one of the editor's objectives . . . Despite a few shortcomings, which can certainly be excused in the first volume, this series will be necessary reading for ambitious analytical chemists." *Robert L. Pecsok.*

Advances in computers. v.1; edited by Franz L. Alt. 316p. 1960. Academic Press, New York, $10.

Journal of the Franklin Institute, April 1961, p.304. 2½ col.

"Although the title suggests an occupation with computer design, it is apparent that a much broader range is intended and that a rather misleading title was perhaps a necessary compromise with brevity . . . The editor, in his choice of articles . . . seems to require that these articles have recent importance and a reference, even if remote, to digital computers. Needless to say, this opens a very broad door. The subsequent admission of only six such articles . . . creates the impression of a technical potpurri much too small, varied, and atypical to sample the vast field implied. Many a prospective buyer . . . will be disturbed to find that only two or three of the varied articles are of sufficient interest to him to consider a purchase . . . Contributes purposely and, in the opinion of this reviewer, unwisely to the informational entropy already too abundant to this field." *John T. Godfrey.*

Alt, Franz L. See Advances in computers.

American Chemical Society.

Reagent chemicals. Ed.3. 564p. 1961. The Society, 1155 16th St., N.W., Washington, D. C., $10.

Analytical chemistry, May 1961, p.64 A. 1 col.

"On the basis that the book will be used by less skilled analysts, details of procedures are given in many cases . . . In addition to citing composition and limits of purity of 234 reagent chemicals, this edition contains an index and a 33-page introduction relating to definitions, procedure, and standards. Methods presented have been checked in at least 6 different laboratories. Most of them have been used for several years. Based on the frequent requests received at ACS headquarters prior to issuance of the 1960 edition for information regarding changes and improvements in reagent specifications, this reference book should meet a widespread need for authoritative information."

Amerine, Maynard Andrew, & **Cruess,** W. V.

Technology of wine making. 709p. 1960. Avi, Westport, Conn., $19.

Glass packer, April 1961, p.70. 1⅛ col.

"In many respects, according to the authors, this book is the third edition of the *Principles and Practices of Wine Making,* which appeared in 1947. However, the title has been changed because they greatly revised and enlarged the text. The authors have broken down their coverage into 20 chapters, some of them dealing with wines generally, on such subjects as yeasts

and molds, chemistry of fermentation, wine spoilage and winery design . . . The extensive detail the authors have brought together into one volume, along with the fact that the latest information has been included, makes this an invaluable book for anyone with an interest in wine production, from student to long-time wine producer."

Amos, S. W.

Principles of transistor circuits; introduction to the design of amplifiers, receivers and other circuits. Ed.2. 210p. 1961. Illiffe, London, 21s.

Electrical review, April 14, 1961, p.677. ¼ col.

"In this second edition all references to point-contact transistors have been omitted and the space saved has been devoted to drift transistors and their applications to pulse amplifiers and v.h.f. receivers. Other new topics included are voltage reference diodes and controlled rectifiers. The sections on transistor multivibrators and on miscellaneous applications of semiconductor devices have been considerably expanded and are now included as separate chapters. The bulk of the book is devoted, as before, to a study of the principles underlying the circuit design of transistorised equipment. A large number of worked examples are included."

Andrews, Alan.

ABC's of radar. 112p. 1961. Sams, Indianapolis, $1.95 unbound.

Missiles and rockets, April 17, 1961, p.52. ⅛ col.

"Explains the fundamentals of radar in simple and understandable terms . . . Designed to provide basic information on transmitter-receiver theory and operation to users of radar and operating and maintenance technicians. Representative radar systems are covered. Chapters include: How Radar Works; Radar Systems; Microwaves; Microwave Oscillators; Timers and Modulators; Antenna Systems; Radar Receivers; Indicators."

Andrews, Henry N., jr.

Studies in paleobotany. 487p. 1961. Wiley, New York, $11.75.

Earth science, June 1961, p.126. ½ col.

"An excellent textbook on paleobotany, not only for geology classes and advanced students, but also for students having little botanical background, because of the splendid and extensive illustrations. There are 181 figures and 604 illustrations and drawings . . . The 18 divisions take you in stages from the beginning of plant life to recent, i.e. Liverworts 'Hepatophyta' to flowering plants (Angiosperms) 'Anthophyta.' There are comprehensive references at the end of each division." *W. L. H.*

Arctander, Steffen.

Perfume and flavor materials of natural origin. 736p. The Author, P. O. Box 114, Elizabeth, N. J., $12.

Oil, paint and drug reporter, April 17, 1961, p.37, 67. ⅔ col.

"The major portion of . . . [this] tastefully illustrated . . . volume is devoted to an alphabetical listing of monographs on the raw materials . . . The information was compiled by the author during twenty years of study and work in the field, plus his travels which took him to four continents. All facts were rechecked not more than eighteen months prior to the book's publication, so the book is up-to-date. It is also critical."

Baker, Wilfred H.

Elements of photogrammetry. 199p. Ronald, New York, $5.

Engineering news-record, May 18, 1961, p.141. ⅛ col.

"Professor Baker developed this book out of years of teaching an elementary course in photogrammetry to civil engineering students. He emphasizes basic principles, particularly with respect to the vertical photograph and the stereoscope. More complex plotting instruments are introduced to stimulate further reading. Photogrammetry is followed through planning, flight, photography, ground control, interpretation and use of the photographs. Numerical problems and laboratory exercises are included."

Batsanov, S. S.

Refractometry and chemical structure; translated from the Russian. 224p. 1961. Consultants Bureau, New York, $9.75.

Analytical chemistry, May 1961, p.64 A. ¼ col.

"The first section reviews the development of refractometry as a special discipline. Material is arranged in chronological order with atomic, molar, bond, and ionic refractions considered separately and related to the type of bonding . . . The second section deals with applications of refractometry to structural chemistry. Included are hydrogen bonds, solutions, silicates, complexes, and organic compounds. Interatomic distances and characteristics of atomic interactions are set forth. The international bibliography contains 459 references."

Beckwith, Thomas G., & **Buck,** N. L.

Mechanical measurements. 559p. 1961. Addison-Wesley, Reading, Mass., $8.75.

Machine design, May 11, 1961, p.381. ⅛ col.

"The first of two parts discusses the fundamental theory of measurement including basic standards, characteristics of dynamic signals, basic detector-transducer elements, and modifying systems such as input circuitry, resonant circuits, and telemetry. Terminating devices and methods are presented on meter indicators, mechanical and electronic counters, and cathode-ray oscilloscope. The second part treats applied mechanical measurement. Separate chapters cover determination of count, events per unit of time, displacement and dimensional measurement with gage blocks and surface plates, pressure, flow and temperature measurement, vibration and acceleration, and the application of radioactive isotopes."

Bekker, M. G.

Off-the-road locomotion. 220p. 1960. Univ. of Michigan Press, Ann Arbor, Mich., $10.

Automobile engineer, April 1961, p.148. ⅛ col.

"In general there is a scarcity of authoritative works on this subject, and therefore the new book by M. G. Bekker is a welcome addition. It is claimed to be the first to offer systematic research on a vehicle as a unit in relation to environmental terrains. The author shows how predictions can be made of vehicle performance and design parameters and discusses soil and snow mechanics, tracks, wheels and tyres, as well as general factors concerning vehicles at assumed optimum performance. He also describes the important developments taking place in industry and education."

Ordnance, May-June 1961, p.868, 870. ⅘ col.

"Bekker has condensed into a text of less than 200 pages a reasonable explanation of how soil properties should be considered in connection with the design of a cross-country vehicle, whether it is moved on a continuous track or on wheels . . . Possible improvements in existing trends of off-the-road vehicle development are suggested and theoretical concepts to accomplish these improvements are stated. The criteria of 'soil trafficability' is defined, and plans for pertinent research are outlined in the last chapter of this highly informative book." *B. S. Mesick.*

Berezhnoi, A. S.

Silicon and its binary systems; translated from the Russian. 275p. 1960. Consultants Bureau, New York, $8.50.

Research applied in industry, April 1961, p.168. ⅖ col.

"Object . . . is to provide a critical evaluation of the accumulated data on binary compounds of silicon. The author has collected systematically information regarding such compounds, in some cases going back a very long way in time in order to do so. As might be anticipated, much of this is based on Russian work and perhaps the chief value of the translated version is the ready access it provides to such work . . . Despite the declared object . . . much of . . . [the book] consists of straightforward statements as to what has been done by various workers and there is very little critical evaluation. As a work of reference however, the book should be valuable." *J. R. D.*

Berry, C. A. See **Sells,** Saul B., & **Berry,** C. A., ed.

Berry, W. R.

Spring design. 324p. 1961. Emmott, Manchester, England, 40s. net.

Mechanical world, April 1961, p.152. ⅜ col.

"The publication of a new book on spring design can justifiably be regarded as something of an event, for literature on the subject is by no means plentiful and this is especially true of comprehensive treatments. This alone should ensure a welcome for the present volume by a recognized authority . . . which admirably fulfils its claims to be practical, up-to-date and complete . . . Principal aim has been to provide designers, engineers, draughtsmen and others concerned, with a quick and practical method of designing springs with the minimum of effort and so save them from searching through diverse literature. To this end he deals with every kind of spring, common and uncommon, and with all the manufacturing processes involved."

Billington, Douglas S., & **Crawford,** J. H., jr.

Radiation damage in solids. 450p. 1961. Princeton Univ. Press, Princeton, N. J., $12.50.

Chemical & engineering news, April 24, 1961, p.94. 1⅝ col.

"The important radiation-induced property changes in all classes of solids have been studied in considerable detail by a large number of investigators, and these efforts are excellently summarized . . . [in this book] . . . Treatment of the material is entirely descriptive, which makes the book highly readable. The mathematical treatment is deliberately confined to the chapter on the theory of radiation damage, since it is the stated intention of the authors to give a survey slanted toward the experimental solid state scientist. Because of this aim, this book does not replace the earlier one (1957) by Dienes and Vineyard which included a rigorous mathematical treatment wherever possible, but becomes a fitting and, in general, more useful companion volume." *A. C. Damask.*

Journal of applied physics, May 1961, p.965. ¼ col.

"This extensive survey of radiation damage in solids presents various theories of the mechanism of defect production by energetic radiation in a form for ready use . . . The authors have attempted to make this a book useful to the newcomer in the field, as well as a reference of those already engaged in radiation damage investigations. In addition to including a general coverage of existing literature, they have kept in mind the needs of the experimental solid state scientists."

Black, Paul Howard.

Theory of metal cutting. 204p. 1961. McGraw, New York, $7.50.

Cutting tool engineering, April 1961, p.30. ¾ col.

"Intended to provide a scientific analysis of the metal-cutting operation . . . Collects and interprets the theories and conclusions concerning what happens at and near the point of a cutting tool . . . Not all the answers to the problems in metal cutting are known. The treatment in this book, however, is fundamental and is directed toward fostering an understanding of the process."

Tool and manufacturing engineer, May 1961, p.241. ¼ col.

"Principles of metal cutting are explained in a manner compatible with the basic theories, avoiding the complexities of a rigorous treatment. Although the mechanism of chip removal is complex, a step-by-step consideration of the elements of the process provides a good basis of understanding. Quantitative data are supplied to assist in establishing metalcutting specifications . . . Well organized, amply referenced and helpful both in teaching metalcutting and in specifying machining operations."

Blitz, J. See **Hogarth,** C. A., & **Blitz,** J., ed.

Boer, Jan Hendrick de.

Symposium on the mechanism of heterogeneous catalysis, proceedings.

179p. 1960. Van Nostrand, Princeton, N. J., $3 unbound.

Chemical age, April 15, 1961, p.625. ½ col.

"This excellent little monograph is a record of a symposium held in Amsterdam in November 1959 with the object of stimulating more interest in heterogeneous catalysis in the universities of the Netherlands . . . The organising committee seem to have exercised a strict but very beneficial control over the papers . . . The result is a series of coherent reviews, greatly superior to those printed proceedings of conferences that are a hotch-potch ill-coordinated papers with which some scientific publishers are flooding the market today . . . The authors have gone back to fundamentals so that the articles can be read by any well-grounded chemists . . . A good book to put in the hands of an honours chemistry student."

Boichenko, M. C.

Continuous casting of steel; translated from the Russian by L. Herdan and R. Sewell. 216p. 1961. Butterworth & Co., London, $9.50.

Canadian mining and metallurgical bulletin, April 1961, p.356. ¼ col.

"Provides the metallurgist and the advanced student with a short survey of the present-day position of semi-continuous and continuous casting of non-ferrous and ferrous metals and alloys, and sets out the metallurgical foundations of continuous casting. A critical survey of the development of present-day methods of continuous casting of steel, both abroad and in the Soviet Union, is given and some technical details regarding equipment are considered. The technological parameters of continuous casting of steel are indicated and the results of comparative investigations of the quality of cast ingots produced by continuous casting and by the normal method of casting into ingot mould are given."

Boischot, A.

La radioastronomie et son apport nouveau à la connaissance de l'univers. 126p. 1960. Masson, Paris, 13 N.F.

Science progress, April 1961, p.349. ¼ p.

"Nearly three-quarters . . . is devoted to describing the radio wave emissions from the Sun, Moon and Planets, the Galaxy, galactic spiral arms of neutral hydrogen, ionised hydrogen clouds and supernovæ remnants and other galaxies. A quarter is concerned with the physics of the emission mechanisms and the propagation of the waves. Only one page is taken up with an account of the instruments used . . . An excellent book, giving a lucid account of contemporary radio astronomy which would make a good introduction to the subject for physics students and teachers as well as being of interest to astronomers." *V. C. Reddish.*

Brandenberger, E., & **Epprecht**, W.

Rontgenographische Chemie. Ed.2. 272p. 1960. Birkhäuser, Basel, Switzerland, DM 32.

Analytical chemistry, April 1961, p.82 A. ¼ col.

"After a chapter on the nature of crystals it deals with methods of roentgenographic investigation of crystalline substances, following with a discussion of crystallization and the amorphous phases. A chapter is devoted to roentgen interference as an indication of crystallization, and this is followed by another chapter on roentgenographic analysis of mixtures and roentgenographic studies of complete systems. The final three chapters discuss roentgen interference as an indicator of the crystalline state; as a means of studying transformations and chemical reactions in the solid state; and as an indicator of the constitution of solids."

Bransom, S. H.

Applied thermodynamics. 230p. 1961. Van Nostrand, Princeton, N. J., $6.

Chemical age, April 15, 1961, p.625. ⅓ col.

"The author . . . has provided an excellently clear, sound and useful survey of elementary thermodynamic principles. The majority of the applications relate to gases or vapour-liquid equilibria: the solid state is scarcely mentioned. However, such topics as fluid flow, gas liquefaction, chemical equilibria, solubility and distillation are dealt with in an illuminating fashion . . . Can be very strongly recommended to anyone interested in acquiring a clear and useful appreciation of elementary thermodynamics and some related physico-chemical methods."

Gas times, April 1961, p.12. ⅜ col.

"A valuable introduction to this science. The text follows a logical order from the explanation of first principles in the early chapters and goes on to deal with the method of presentation of experimental data and the preparation of thermodynamic diagrams of different types . . . At the end of each chapter notes and examples are given which are a considerable help to the full understanding of the main text and of particular help to the student . . . A valuable book which can be of great help to an understanding of a difficult subject which is not so widely known as it should be. It is of value to the student and also to the technician who wishes to be kept up-to-date in the field of modern science." *J. G. K.*

Bückle, H.

L'essai de microdureté et ses applications. 274p. 1960. Ministère de l'Air, Paris, 61 N.F. (Publications Scientifiques et Techniques, no.90.)

Proceedings of the Physical Society, April 1, 1961, p.942. ½ p.

"Dr. Bückle is well known as a specialist in the field of microhardness measurement. In this book he has distilled the essence of his work over the last twenty years and summarized his main conclusions . . . Very well produced and, if one is not entirely happy with some of Dr. Bückle's theoretical explanations, one is full of admiration for the beautiful experimental work which he has carried out and which he describes with infectious enthusiasm." *D. Tabor.*

Bueltmann, W.

Die Arbeitszeit Ermittlung der Verzahnungsarbeiten. 175p. 1960. Springer, Berlin.

Tool and manufacturing engineer, May 1961, p.240. ⅝ col.

"Covers the entire field of time studies for spur, helical, bevel, worm and other gear-

cutting operations, the first book ever written exclusively on this subject. The six chapters adequately cover the topics of gear milling, hobbing, shaping, shaving and grinding. The manufacture of gears and particularly the rate setting for these operations requires good knowledge of the principles of metalcutting science and familiarity with the design features of gears. Time-study and tool engineers will find many answers to their problems in this book . . . Can be recommended to those familiar with German engineering terms and acquainted with the Modul System used in metric countries for dimensioning of gears rather than the Pitch System used by us." *M. Kronenberg.*

Campbell, James S.

Principles of manufacturing materials and processes. 674p. 1961. McGraw, New York, $9.75.

Machine design, April 27, 1961, p.208. ¼ col.

"Details of available manufacturing processes are presented in a comprehensive survey of the field. Measuring and gaging, heat treatment, sand molding, cleaning and finishing, welding, brazing and soldering, melting, and rolling and forging are some of the techniques and processes covered. A separate chapter is devoted to recent developments such as electroforming, electrolytic grinding, chemical milling, ultrasonic machining, electron-beam welding and machining, and electric-discharge machining."

Casey, James P.

Pulp and paper chemistry and technology. Ed.2. 3v. v.2: Papermaking. 815p. 1960. Interscience Publishers, New York, $25.

Journal of forestry, May 1961, p.381. 1¾ col.

"The 668 pages of text and figures cover adequately the fundamental operations of this important industry . . . The writing of such a book is a tremendous task for one man. In the reviewer's opinion the author has achieved his goal 'to present the technical side of papermaking from a fundamental viewpoint.' This will be a useful and valuable book to the person interested in the manufacture of paper whether he is a student, technical worker, or specialist . . . Well printed and bound . . . Contains an adequate index." *Irving H. Isenberg.*

Journal of the American Oil Chemists' Society, May 1961, p.31. ⅜ col.

"The main sections deal with fiber preparation the nature of fiber bonding, sheet formation, water usage and disposal, microbiology, beater and wet-end additives, filling and loading, internal and surface sizing, wet strength, and coloring . . . These subjects are treated competently and the style is lucid . . . Can be recommended to chemists, mill men, and students, not only in the paper field, but to those in related industries since all of them use paper, and, to most of them, its manufacture is of importance." *Louis E. Wise.*

Clepper, Henry, & **Meyer,** A. B., ed.

American forestry; six decades of growth. 319p. 1960. Society of American Foresters, Washington, D. C., $5.

Journal of forestry, May 1961, p.380. 2⅝ col.

"Lack of documentation detracts from the book's value as an historical reference . . . There is some doubt . . . that the book will receive the wider consideration of the conservation-minded general public. There is too little of the color of forestry history woven into the book, too scant portrayal of the giants who made that history, too little of the conflicts which have from time to time disturbed the profession but which have also helped to mold it and the various movements which it has championed. The book of forestry history which will do that job has yet to be written." *Elwood R. Maunder.*

Conn, G. K. T., ed.

Semiconductor technology. 74p. 1960. Butterworth & Co., London, 10s. 6d.

Electronic engineering, April 1961, p.246. ⅛ col.

"Compiled from a series of papers revised and reprinted from *Research* . . . Consists of a number of articles on the preparation of pure materials and on controlled alloying. Attention is given to transistors and to the problems of handling power. The parameters which determine optical behaviour are discussed in general terms; this is followed by an article on the design, manufacture and testing of infrared photocells as an example."

Cornelius, P.

Electrical theory on the Giorgi system; translated from the 3rd Dutch edition by L. J. Jolley. 187p. 1961. Cleaver-Hume, London, 32s.

Electronic engineering, May 1961, p.317. 1 col.

"Aimed at a technical level rather lower and less rigorous than that of the University honours degree, a level which in terms of the author's preface should serve 'the ambitious radio technician, the engineer, and the experimental physicist' . . . The theory is founded throughout on experimental arguments, and perhaps this is why the author hopes it will appeal to the experimental physicist; but the author always has in mind his ambitious radio technician, and the graduate engineer or physicist would benefit from a fuller discussion of points such as the way in which the concept of displacement current makes the generalized electric current a quantity which is always continuous. The mathematics, too, is rationed. Perhaps a vector analysis could have been put in an appendix." *D. A. Bell.*

Cosslett, Vernon Ellis, & **Nixon,** W. C.

X-ray microscopy. 406p. 1960. Cambridge, New York, $15.

Chemical & engineering news, May 1, 1961, p.64. 1⅞ col.

"In 1956, a Symposium on X-Ray Microscopy and X-Ray Microanalysis was held at Cambridge . . . For the first time, workers in the field were brought together and a large number of papers representing the state of the art at that time were presented. The authors draw heavily from the papers presented there but have incorporated the information in a logical unified text on x-ray microscopy. Happily, a delay in publication has increased the value of the book since it permitted the inclusion of references to papers presented at the Second International Symposium on X-Ray

Microscopy and X-Ray Microanalysis, held in Stockholm in June 1959 . . . The comprehensive treatment . . . plus the complete, up-to-date bibliography, commend this volume highly to all those now using the techniques they discuss . . . Should for many years be a principal reference work in the field." *Lawrence M. Kushner.*

Journal of metals, May 1961, p.342. ¾ col.

"A clear account of the principles, applications and limitations of the various techniques and should be welcomed by students and researchers alike who are interested in this field . . . Unfortunately, various diffraction methods which have recently become important in the study of lattice defects such as the Lang X-ray topography, the Borrmann method for studying dislocations and recent developments of the divergent beam method found only very brief mention. This neglect, however, is a measure of the rapidity with which the subject continues to develop rather than a defect in the work . . . Adequately illustrated with line diagrams and well-reproduced micrographs." *Sigmund Weissmann.*

Couderc, Paul.
Wider universe; translated by M. Davidson. 128p. 1960. Harper, New York, $2.25.

Science progress, April 1961, p.349. ⅙ p.

"A wide range of modern discoveries about the Universe are dealt with . . . Evolution of stars, the structure of our Galaxy and other galaxies and their distribution in clusters and super clusters, the distant radio sources—all find their place. An interesting account is given of various determinations of the minimum age of the Earth. Unfortunately the prior knowledge expected of the reader varies greatly and inconsistently. Many of the terms and concepts used without explanation will probably not be well enough understood by the non-astronomer to make the book comprehensible, and those with sufficient understanding will find much of the book boring." *V. C. Reddish.*

Davies, Gomer L.
Magnetic tape instrumentation. 263p. 1961. McGraw, New York, $8.50.

Control engineering, May 1961, p.203. ½ col.

"Not a treatise on how to design magnetic tape hardware, this is an up-to-date guide to the purchase, use, and application of tape equipment for data recording and reproduction . . . There is a minimum of mathematics in the text, but two appendixes contain hitherto unpublished analyses of the effect of flutter on FM carrier recording, and time displacement error due to tape speed variation."

Electronic industries, April 1961, p.82. ½ col.

"Clear explanations on how to best use magnetic tape equipment and effectively apply it to data recording and reproduction are given . . . Ranging from basic techniques used in data recording to major application of magnetic tape equipment, the book brings together up-to-date facts and data needed by those who use such equipment in instrumentation and data acquisition and processing systems. Emphasis is on data recording methods, with background material on magnetic recording principles, including phase characteristics of a magnetic tape system. Certain aspects of the magnetic recording process which are of special importance in instrumentation applications are stressed. Also considered are those techniques which are particularly employed for the recording of analog and digital information in the business and technical fields."

De Boer, Jan Hendrick. See **Boer,** Jan Hendrick de.

Devine, J., & **Williams,** P. N., ed.
Chemistry and technology of edible oils and fats. 200p. 1961. Pergamon, New York, $6.

Chemical age, April 8, 1961, p.583. ⅔ col.

"Records the proceedings of a conference sponsored by Unilever Ltd. at Port Sunlight in March 1959 . . . The first paper describes major aspects of glyceride chemistry . . . The second treats the economic aspects of fatty food consumption in the U.K. and the third describes the main technological features of the batch refining and blending of fats and oils. There follows a very general review of analytical methods applicable to fats and oils. The fifth and sixth papers will be of interest to chemists directly concerned with lipids . . . This is followed by an Appendix . . . giving full experimental details of numerous routine chemical and physical analytical methods. Although the book contains interesting material it is not an addition to the literature of lasting value."

Dieudonné, Jean.
Foundations of modern analysis. 361p. 1960. Academic Press, New York, $8.50.

Science progress, April 1961, p.347. ⅔ p.

"Explicitly intended for, and arises from, lectures given to mature university students. It is not however because of the subject matter it treats, but because of the abstract and axiomatic nature of the treatment, that it is not regarded as a suitable text-book for freshmen . . . Scope . . . is considerable, including most of what is usually included in elementary treatises on analytic topology, the theory of functions of a real variable or several variables, and the theory of functions of a complex variable; and, as would be expected in an abstract treatment, the book contains a very comprehensive presentation of the basic concepts and results of functional analysis. Each chapter is divided into sections and each section is furnished with a set of problems whose computational and concrete nature restores the pedagogic balance and checks the student's understanding of the text." *P. J. H.*

Drummond, James E.
Plasma physics. 386p. 1961. McGraw, New York, $12.50.

Journal of applied physics, May 1961, p.966. ⅔ col.

"Seeks to provide extensive reviews of some of the important special areas in plasma physics, such as quantum plasma physics, detailed statistical mechanics of plasmas, and aerodynamic aspects of magnetohydrodynamics. The organization of the material and a number of the chapters were in a series of seminars held at the Stanford Research Institute during

1957-1958. The content of these chapters has been substantially augmented and reworked, and a number of important chapters have been added."

Dummer, G. W. A., & Blackland, W. T.
Radio and electronic components. v.5: Wires and r.f. cables. 239p. 1961. Pitman, London, 47s. 6d.

Electrical review, April 14, 1961, p.677. ⅓ col.

"The first part . . . covers wires and sleeving and contains five chapters dealing with their choice, manufacture, measurement and test procedures, faults and developments. Part II is concerned with radio-frequency cables and comprises seven chapters on similar aspects of the subject. In addition, there is a chapter dealing with specifications and publications on connecting wires, sleeving and r.f. cables, also bibliographies and an appendix giving characteristics of British Services types of r.f. cables."

Educational Services, Incorporated — Physical science study committee.
Physics. 656p. 1960. Heath, Boston, $5.48.

School science and mathematics, May 1961, p.399. ⅔ p.

"This textbook is the product of four years of work by the Physical Science Study Committee. This much publicized committee was formed to develop an improved introductory physics course. The book is the first truly 'modern' physics textbook to be published. The approach is different than that usually found in a high school physics course. This could cause some difficulty for the teachers using the textbook for the first time . . . Whether the new course will be accepted universally can only be determined by trial and time but the approach used will certainly have an influence in changing the existing inadequate high school and college physics courses . . . An excellent textbook. Any physics teacher dissatisfied with the present high school physics course should certainly consider this challenging new book for adoption." *J. Bryce Lockwood.*

Science counselor, March 1961, p.22. ¼ col.

"Represents the most recent efforts toward the complete revision of conventional high school Physics. The authors, both college and high school teachers, drew on their experience and results of many testing programs to develop this thoroughly logical and interrelated text. Designed to satisfy the needs not only of the average or better student but suitable as well for the ones with less aptitude . . . Written in an almost informal style of conversational form with the result that it achieves a motivation not usually obtained. Questions at the end of each chapter also include home type projects and there is a list of suggested reading included." *A. J. K.*

Efron, Alexander.
Alternating current electricity. 96p. 1961. John F. Rider, New York, $2.25 unbound.

Electronics world, June 1961, p.82. 8 l.

"A basic text on alternating current which would be entirely suitable for the beginning student or the student tackling the subject on his own . . . Clear, well-written, and progressive with every chapter including problems of graded difficulty as well as questions and problems for self-testing."

Popular electronics, June 1961, p.24, 26. ⅓ col.

"Techniques for generating and alternating electromotive force are covered first, and concepts of the sine wave, cycle, frequency and period are carefully developed. Resistance, capacitance, and inductance — the components of a.c. circuits — are discussed next. The vector diagram approach is used, emphasizing the geometrical nature of the relationships. Chapters on a.c. measuring equipment, polyphase power, the transformer, a.c. motors and rectification complete the text, and an appendix is devoted to the 'j' operator and complex numbers."

Engineering Foundation — Column research council.
Guide to design criteria for metal compression members. 112p. 1960. The Author, 319 West Engineering, Univ. of Michigan, Ann Arbor, Mich., $5.

Iron and steel engineer, April 1961, p.240. ⅔ col.

"Presents a condensed summary of design criteria based upon recent as well as past research on metal compression members in buildings and bridges . . . Designed to explain special problems not covered by standard specifications, and to help in the preparation of specifications for such structures . . . Furnishes an understanding of behavior of compression elements and specification requirements whether the material is aluminum, steel or other metals. Areas of interest covered include centrally loaded columns, compression member details, laterally unsupported beams, and beam-columns."

Faber, Oscar.
Reinforced concrete. Ed.2, revised and enlarged by John Faber and F. Mead. 532p. 1961. Van Nostrand, Princeton, N. J., $14.75.

Civil engineering and public works review, April 1961, p.513. ¾ col.

"In producing this edition, the authors have materially changed its content and scope so that it now aims at providing a reasonably comprehensive guide for students and design engineers, of current practice in the design of in-situ concrete buildings, including foundations . . . Lucidly written by Consulting Engineers well versed in in-situ reinforced concrete construction; there are occasional indications of 'being comfortable' with steel, and there is no reference to the modern technique of precast concrete construction . . . Nevertheless the book succeeds in providing in one volume an excellent treatise for the practising or student designer in in-situ reinforced concrete." *F. W. G.*

Mining engineer, April 1961, p.513. 1⅔ col.

"A new revised and enlarged edition of Faber's original book which was published in 1952. Apart from its value as a comprehensive textbook on reinforced concrete, it contains copious references to the original papers and publications Faber produced during his life . . . Deals with most aspects of structural design in reinforced concrete and, in addition, has chapters on materials, soil properties and

pre-stressing . . . Stands out as a major contribution to our understanding of the design of reinforced concrete structures. I predict that it will be as well received as the original 1952 edition, and will remain a standard text book for students and a first-class reference book for all engineers who have occasion to deal with all problems connected with reinforced concrete." *G. P. Bridges.*

Fance, W. J.

Students' technology of breadmaking and flour confectionery. 443p. 1960. Routledge, London, 56s. net.

Food manufacture, April 1961, p.142. ⅔ col.

"Divided into two parts, the first dealing with breadmaking and fermented goods, and the second with flour confectionery . . . Aimed particularly at the apprentice and part-time student . . . The author is lecturer-in-charge of Bakery Subjects at the South-east Essex Technical College and School of Art, and a past president of the Institute of British Bakers. His competence is therefore without question . . . Copiously illustrated with photographs and line drawings."

Ferry, John D.

Viscoelastic properties of polymers. 482p. 1961. Wiley, New York, $15.

Canadian chemical processing, April 1961, p.120. ⅓ col.

"The subject of the viscoelasticity of polymers has matured to the point, feels Dr. Ferry, where some kind of summarizing treatment seems desirable. The author carefully develops a discussion of the phenomenological theory of viscoelasticity followed by the presentation of a variety of experimental methods with a critical appraisal of their applicability to polymeric materials of different characteristics. The existing state of molecular theory is reviewed and used to interpret the effects of temperature, chemical structure, plasticization, and other variables."

Science, April 21, 1961, p.1251. ¾ col.

"It will not surprise his colleagues to find that John Ferry develops his subject with a logical rigor that approaches the proverbial Lagrangian elegance about as closely as could any treatment of viscoelasticity, for the subject is still in its adolescence. Although it is logically coherent, this work is not a compilation of all work that has been done on the viscoelastic properties of polymers, nor is it a stringing together of chapters on nonsequential, specialized subjects. Perhaps because he wished to adhere closely to this tone of coherence, the author has been selective. This has resulted in what some might consider important omissions." *W. James Lyons.*

Graybill, F. A.

Introduction to linear statistical models. v.1. 463p. 1961. McGraw, New York, $12.50.

Electro-technology, May 1961, p.174. 10 l.

"An introductory mathematical treatment of topics important to statistical consultants, this text discusses regression, correlation, least squares and experimental design. Concern is with mathematical treatment of statistical models to obtain results about various components, generally in the nature of point estimation, interval estimation and hypothesis testing."

Guest, P. G.

Numerical methods of curve fitting. 422p. 1961. Cambridge, New York, $15.

Machine design, April 27, 1961, p.209. ⅓ col.

"Presents methods of treating series of observations and draws upon both statistics and numerical analysis. In the first of three parts, the book deals with observations of a single variable ('curve' of zero degree) including the general theory, normal distribution, statistical tests, and discrete distributions. The second part covers the straight line including normal equations, statistical tests on normal law, and the independent variable subjects to error. The third part covers polynomials and other curves . . . Includes estimation of polynomial coefficients, standard deviations of the estimates, the grouping of observations, and general regression, and functional relationship problems in several variables. Illustrative examples are included."

Gyngell, Eric S.

Applied chemistry for engineers. Ed.3. 359p. 1960. St. Martins, New York, $7.50.

Industrial chemist, April 1961, p.203. ⅔ col.

"The section on fuels—which now occupies more than half of the book—has been considerably expanded to include chapters on nuclear fuels and nuclear reactors. Treatment in this part . . . is remarkably full and informative . . . The remainder of the work is made up of an assortment of topics which are of interest to the engineer, such as the corrosion of metals, paints and varnishes, water treatment and lubrication . . . Assumes that the reader has a sound knowledge of chemistry up to advanced level; for this reason it will be better suited to the man already in practice, rather than to the student in training. Fuel technologists would find it particularly helpful." *Kenneth Stuart.*

Haine, M. E., **& Cosslett,** V. E.

Electron microscope; the present state of the art. 275p. 1961. Spon, London, 55s. net.

Physics in medicine and biology, April 1961, p.456. ½ p.

"On reading this book it is apparent that the average biologist will at once be disappointed. Even though the minimum of mathematics may have been used there is still plenty of it . . . The final chapter he will like since it covers succinctly a wide range of essential information. The physics undergraduate will fare rather better but feel that he is delving into what is very much a specialist's field. It is indeed those with a good background of physics and mathematics, who are particularly interested in electron microscopy, that this book will best serve . . . Essentially a monograph of high calibre in which elementary (?) data is considered only briefly. From this viewpoint the book is clearly a good one written by two authorities who know the subject thoroughly." *Dennis Lacy.*

Hall, Dick Wick, & **Kattsoff,** L. O.
Modern trigonometry. 236p. 1961. Wiley, New York, $4.95.

Science counselor, March 1961, p.21. ½ col.

"This modern text is a definite contribution to the existing library of books on trigonometry . . . Emphasizes thinking and reasoning instead of routine manipulation of formulas . . . The many examples and figures implement and clarify the discussion considerably . . . The usual topics, the solution of the right triangle, the solution of the oblique triangle, logarithms, trigonometric equations, graphs, identities, formulas, are all included and masterfully treated . . . An excellent text, and this reviewer feels that it has a definite place in the modern mathematics curriculum, especially at the secondary level." *Charles F. Sebesta.*

Hammond, Rolt.
Foundations and soil properties. 181p. 1961. MacDonald & Co., London, 30s.

New scientist, April 13, 1961, p.60. ⅔ col.

"Unfortunately, the author has inadequately assimilated the transcriptions from published work which form the major portion of his book. Too often, also, his source of information appears to be a commercial handout so that the limitations of the processes under discussion are avoided and there is virtually no mention of the cost and time involved, factors of prime importance to the engineer. The engineer or student will be disappointed to find that few references are given and the author appears to prefer the obscure or inaccessible, although several of the examples he cites are fully described in the literature readily available to the civil engineer . . . Subject is widely interesting, but the reader should be warned of this book's many omissions and inaccuracies." *A. M. Muir Wood.*

Hardy, H. W.
Machine-tool slides and sliding elements. 76p. 1960. Industrial Press, New York, $1.50.

Machinery (New York), May 1961, p.244. ½ col.

"As there are so many different types of sliding elements and guide ways, and alternative designs for the majority of them, all dependent more or less on the conditions under which they are to be used, it will be appreciated that only a very small percentage of them can be dealt with in a book of this size. However, if the reader will study these examples carefully and then endeavor to examine some actual machine tools which have the same, or similar, guide ways, then he should acquire a sound practical knowledge of this subject which will enable him to deal with any slide problem he may encounter."

Mechanical world, May 1961, p.189. ¼ col.

"Deals with the many types of slides and slide motions which play such a large part in the design and working of machine tools and similar mechanisms. The designs covered range from the most simple bar guide to narrow guideways and ball and roller guarded slides. Naturally in such a short work only a small percentage of the large number of sliding elements and guideways is dealt with but these have been selected so that after a careful study the reader will have no difficulty in dealing with any slide problem he may meet."

Harker, Alfred.
Petrology for students; an introduction to the study of rocks under the microscope. Ed.8, revised. 283p. 1960. Cambridge, New York, $1.95 unbound.

Canadian mining journal, April 1961, p.134. ⅓ col.

"Designed for geological students who do not intend to specialize in petrology. The twenty pages of introduction provides an interesting and informative lecture on the microscope and how best to use it in examining rocks. There follow four chapters in which rocks, grouped as Plutonic, Hypabyssal, Volcanic and Sedimentary, are adequately described in texture and composition. The text is supported by numerous microscopic reproductions of rock slices. A final chapter discusses thermal and dynamic meta morphism. Frequent footnotes refer to source material and a short index aids in rapid reference."

Harrison, W. A., & **Webb,** M. B., ed.
Fermi surface. 356p. 1961. Wiley, New York, $10.

Iron and steel engineer, April 1961, p.242. ¼ col.

"Contains the proceedings of an international conference of Fermi surfaces held at Cooperstown, N. Y., August 22, 23, 24, 1960 sponsored by Air Force Office of Scientific Research and the General Electric Research Laboratory. The remarkable progress of the last few years in the understanding of the electronic properties of metals is summarized, the current status of the science is clarified, and the problems which still require solution are defined. Numerous tables, equations, graphs and photographs are used throughout . . . Both author index and subject index are given."

Heine, Volker.
Group theory in quantum mechanics; an introduction to its present usage. 468p. 1960. Pergamon, New York, $15.

Australian journal of science, March 1961, p.313. 1⅔ col.

"Many books on group theory will probably be appearing soon, but few are likely to be more influential than Dr. Heine's. This book is remarkable for its range, conciseness, clarity and pedagogic skill. The author sets out to satisfy the needs of those who really wish to use the theory. He is rigorous in developing it, but he had restrained himself from diverting along sidetracks which, for all the illumination they throw on the underlying structure of the theory, are not strictly essential at a first reading . . . Style is spare, direct and unaffected. Particularly notable is the use he makes of problems. The reviewer has never seen problems better used in a text." *I. G. Ross.*

Science progress, April 1961, p.357. ⅝ p.

"After introductory chapters on symmetry transformations, the quantum theory of the free atom and the representation of finite groups, the formalism developed is applied to free atoms and ions, the structure and vibrations of molecules, solid state physics, nuclear physics and relativistic quantum mechanics. Much of the mathematics that is required is summarised in appendices together with character tables. Examples of varying difficulty

and some useful comments on books for further reading are included . . . Not only a convenient basic reference text but should also do much to encourage the wider establishment of post-graduate lectures in *Group Theory* for physicists and chemists." *G. R. Wilkinson.*

Herzka, A., & Pickthall, J.

Pressurized packaging; aerosols. Ed.2. 509p. 1961. Butterworth & Co., London, 70s. net.

Food manufacture, May 1961, p.204. ⅓ col.

"The second edition of this comprehensive book . . . brings it fully up to date, new material on compressed gases and formulations employing compressed gases being included. This makes it of greater value to the food manufacturer, although the section devoted specifically to foods comprises a mere 16 pages out of the total . . . There are many references to papers in the world's scientific and trade journals."

Food processing & packaging, April 1961, p.159. ¼ col.

"The twenty-one chapters . . . deal with propellants, containers, valves, filling methods, laboratory procedures and emulsified systems. There is a complete section containing more than 200 formulae covering such widely differing items as foods, insecticides, cosmetics, paints and varnishes and other products. In addition, trade names and patents and a world directory of suppliers are appended. In this second edition there is a new section dealing with legal considerations, which comprises a chapter on regulations and a bibliography of relevant patents."

Higgins, Raymond A.

Engineering metallurgy. pt.2. 404p. 1960. English Universities Press, London, 25s.

Iron & steel, May 1961, p.196. ½ col.

"Part I . . . was published in 1958, and the present volume is intended for use with it. Whilst the first volume dealt primarily with the fundamental principles underlying the various metallurgical processes, Part II is mainly concerned with the outline of the processes themselves . . . Extremely readable and the descriptions of the various techniques clear and precise . . . Those readers who already possess Part I . . . should certainly acquire its companion volume and the pair will prove a useful asset to the metallurgical student and those who have to assimilate a knowledge of metallurgy. Potential readers who do not possess Part I should not be dissuaded from purchasing the present volume on this account, as it is well able to stand in its own right as an excellent text book on metallurgical processes." *J. F. Mercer.*

Metal industry, April 28, 1961, p.339. 1 col.

"Provides a concise comprehensive catalogue of processes concerned with metallurgical transformation and treatment. It is the accuracy and clarity of the text which make this book so effective to the student, but it is unlikely that . . . [it] will be regarded as a source of reference for those who are concerned with the development and supervision of metallurgical processes. The student with specialized interests and eagerness to go beyond the text will find that the references for further reading are of great value, although an unduly high proportion of these are for U.S.A. literature. The abundance of sketches and photographs is a feature to be commended." *P. E. W.*

Transactions of the Institute of Marine Engineers, April 1961, *supplement,* p.iv. ⅛ col.

"The scope is enormous since it covers casting and foundry technique . . . die casting, forging, extrusion, rolling, wire drawing, tube mills, welding, brazing, soldering and heat treatment. Great care has been exercised by the author to deal with and emphasize the advantages and also the limitations of each particular process and the exposition is admirable. It therefore provides the reader with valuable information when a decision has to be made as to the best material to use or how best to work and heat treat it."

Hoelscher, Randolph P., & **Springer,** C. H.

Engineering drawing and geometry. Ed.2. 628p. Wiley, New York, $8.95.

Machine design, May 11, 1961, p.381. ⅓ col.

"The elements of engineering drawing are presented, including geometrical constructions, orthographic projection, sectional views, dimensioning, and material specification. In addition, other parts cover fundamental descriptive geometry, graphical computation, and geometry of advanced projection systems including intersections and developments, axonometric projection, oblique projection and perspective. The section on graphic computation discusses charts and diagrams, vector analysis, layouts for empirical equations, and construction and use of nomographs. Professional applications are given for map, architectural, structural, pipe, welding, and patent-office drawing."

Hogarth, C. A., & Blitz, J., ed.

Techniques of non-destructive testing. 216p. 1960. Butterworth & Co., London, 40s.

Electronic engineering, April 1961, p.247. ⅓ col.

"Most of the chapters . . . are self-contained accounts of the theory and practice of electrical, magnetic, mechanical, and visual testing techniques. Other chapters devoted to ultrasonic, radiological and thermal comparator methods are supported by thorough introductions to their scientific backgrounds, which help the readers to gain full value from the use of these new and important methods of non-destructive testing. A final chapter outlines the manner in which many of the techniques are in current use within a government establishment."

Hollaender, Alexander, ed.

Radiation protection and recovery. 392p. 1961. Pergamon, New York, $10.

Discovery, April 1961, p.170. 2 col.

"The expert radiobiologist . . . will regard this collection of articles by radiation research scientists as reviews of recent literature, and, in many instances, of their own work; the majority of the contributors are members of the Biology Division at Oak Ridge . . . The reader who is not very familiar with the subject will, however, suffer from disadvantages which are perhaps inherent in this technique of scientific bookmaking; the material is not coordinated, and is split up according to the fields in which the individual contributors work,

instead of being arranged in a logical sequence which would give shape to what must appear as a confusing picture." *Tikvah Alper.*

Huber, Richard.

Trocken-Batterien. 111p. Oldenbourg, Munich, Germany, DM 5.80.

Radio-electronics, June 1961, p.108. 10 l.

"A very complete little treatise . . . on Leclanché cells, covering fundamentals and theory, raw materials, fabrication, and special types. Also includes a chapter on cells with an electrochemical composition differing from the Leclanché (magnesium, copper or mercury oxide, etc.). A chapter of technical tips and tables wraps up the work." *F. S.*

Huke, D. W.

Introduction to natural and synthetic rubbers. 161p. Hutchinson, London, 25s.

New scientist, May 4, 1961, p.270. ½ col.

"The fly-leaf of the dust cover suggests that the material presented will be eminently useful to all who require a sound introduction to the chemistry and technology of rubber. This is an exaggeration. The book will be virtually useless to the serious student . . . Chapter 1 is a readable history of natural rubber; but later sections dealing with the physical properties and processing of rubbers are so trivial —and at times confusing . . . —as to be of little value. It is difficult to believe that the volume will be treated as a reference book. Hence the 12-page index, an 11-page glossary and the bibliography seem rather a waste of print and effort." *F. H. Cotton.*

Ioffe, A. F.

Physics of semiconductors; translated from the Russian. 436p. 1960. Academic Press, New York, $12.50.

Electronic engineering, May 1961, p.318. 1⅛ col.

"All deep mathematical theory is avoided but to compensate, the scope is great and the properties of a large number of semiconductors find their way into the text. The treatment, though aimed at presenting the main ideas and results for the purpose of technically controlling the properties of semiconductors, is by no means shallow. On the contrary Ioffe's discussion of the inadequacy of band structure concepts when applied to the transition between solid and liquid semiconductors and also generally to low mobility semiconductors plunges into depths all too often avoided in textbooks. His assessment of the present state of semiconductor science in the final chapter is brilliant and no one in the field should fail to read it." *B. K. Ridley.*

Jerrard, H. G., & **McNeill,** D. B.

Theoretical and experimental physics. 624p. 1960. Chapman & H., London, 75s.

New scientist, April 13, 1961, p.59. ½ col.

"The attempt to provide in condensed form the essence of practical and theoretical physics is interesting, but I find it difficult to visualize the class of reader to whom the book can be recommended. The accounts of experimental procedures are too sketchy to form a suitable laboratory manual for students, and the theoretical portions are too disjointed to be in any sense a substitute for standard text books. The professional physicist seeking to solve a specific problem will surely want more detailed descriptions of apparatus and method than is provided here. There is a great need for a textbook of practical physics which takes full account of the transformation undergone by the subject during the last decade, and it is to be regretted that the authors have failed to fulfil this need because they have attempted the impossible task of combining in a single volume a practical and a theoretical textbook." *T. B. Rymer.*

Joffe, V. B.

Osnovy proizvodstva vodoroda. 430p. Gostoptekhizdat, Leningrad, 15 rubles.

Chemical engineering, April 17, 1961, p.239, 241. 1⅛ col.

"A moderately detailed summary of the properties, manufacture, purification and handling of . . . [hydrogen] on an industrial scale. The author, associated with the State Institute for the Nitrogen Industry (USSR), has based his work partly on studies made there and partly on published information. Most of the common methods currently employed and some others of limited or perhaps historical interest are described . . . Documentation is rather sketchy with only 126 references to the literature, of which one-third are to Soviet sources . . . All in all, this is a well rounded, well organized, respectably printed survey of industrial hydrogen . . . Engineers not overly familiar with the Russian language may still derive much benefit from the book by reading figure titles and table entries with dictionary in hand." *S. M. Walas.*

Kolk, W. Richard.

Modern flight dynamics. 288p. 1961. Prentice-Hall, Englewood Cliffs, N. J., $10.

Design news, April 10, 1961, p.146. ¼ col.

"Aeronautical and astronautical engineers, and anyone engaged in the design or fabrication of airplanes and missiles will find . . . [this book] a valuable text and reference guide . . . Bridges the gap between airplanes and rockets with particular emphasis on dynamic motion and stability of that motion. Two introductory sections, Cosines and Eulerian Angles, are used as tools with which the dynamics of flight vehicles are analyzed. For clarity and ease of continuity, analyses whose results are essential to the subject matter are included in the appendices rather than in the text itself. Vector analysis, calculus and mechanics are the only prerequisites."

Kopal, Zdenek.

Moon; our nearest celestial neighbour. 131p. 1960. Chapman & H., London, 25s.

Sky and telescope, June 1961, p.355. ⅝ col.

"The discussion of . . . topics is well-informed and generally balanced, and the reader profits by the author's firm grasp of the astronomy and physics involved. Nevertheless, *The Moon* is an uneven book. The introductory portions were hastily written, and their organization is not good. Chapter 7, with its speculations about the moon as a future Utopia, could well have been replaced by more solid fare. Strictures like these do not apply to the main body of the work." *J. A.*

Krishman, M. S.

Geology of India and Burma. Ed.4. 604p. Higginbothams, Ltd., Madras, India, 22.50 rupees.

New scientist, April 13, 1961, p.62. ⅝ col.

"The main changes . . . are the provision of an introduction to each System, giving a brief account of the stratigraphy in the type areas of Western Europe; and the revision of the chapter on the Jurassic in the light of recent work. Otherwise the treatment remains essentially as before. The exposition is, on the whole, quite clear and though the use of numerous sub-headings makes the recital rather disjointed, these are a valuable aid to reference. The illustrations are utilitarian, but adequate . . . On the whole, though the material might be better arranged, this volume contains an immense amount of information and should satisfactorily fulfil the need for an advanced treatise on Indian stratigraphy for general study and reference . . . Sections dealing specifically with . . . [Burma] occupy only about 30 pages." *R. Tavener-Smith.*

Kuiper, Gerard P., & **Middlehurst,** B. M., ed.

Stars and stellar systems. 9v. v.1: Telescopes. 255p. 1961. Univ. of Chicago Press, Chicago, $8.50.

Science, May 5, 1961, p.1416. 1⅗ col. including another review.

"Limits itself to telescopes themselves, leaving the description of the auxiliary equipment to another of the proposed nine-volume compendium of stellar astronomy and astrophysics. Thirteen authors contribute chapters describing the various kinds of modern astronomical telescopes that are useful in these areas; radio telescopes are included. Two of the most interesting chapters discuss astronomical 'seeing' (that is, atmospheric effects on image quality) and observatory site selection. Each author writes authoritatively . . . Addressed to astronomers, or to others who have training in science or engineering . . . Certain to be well received and widely used." *Armin J. Deutsch.*

Langmuir, Robert V.

Electromagnetic fields and waves. 227p. 1961. McGraw, New York, $9.75.

Electronics, April 28, 1961, p.160, 162. ⅛ col.

"A concisely written treatment of electrostatics, magnetism, and electrodynamics . . . Written for courses at the senior or first year graduate level in electrical engineering or applied physics . . . Purpose is to train the student in the mathematical methods as well as the basic physics of the field. A number of problem examples and their solutions are given to aid the student in developing and understanding of the subject matter. At the end of each chapter practice problems are given to test the student's understanding and to further develop the subject matter. Emphasis is placed on such subjects of modern electrical engineering as waveguides, resonant cavities, antennas and wave propagation." *Robert E. Beam.*

Proceedings of the IRE, May 1961, p.981. ⅞ col.

"Should find wide use as a text for a senior course for electrical engineering majors. Although many of the sections . . . are similar to those traditionally included in most senior-level texts on electromagnetics, many topics which have been normally included in more advanced texts are introduced here. In particular, there are several examples involving line charges within conducting boundaries . . . Problems at the end of each chapter represent exercises of varying difficulty, and it is in many of these that the student encounters subjects not treated in the text proper but which he is able to handle. The small size of the book does not imply that the scope . . . is limited, but attests to the efficient use of pages by the author." *D. J. Angelakos.*

Leet, Lewis Don.

Vibrations from blasting rock. 134p. 1960. Harvard Univ. Press, Cambridge, Mass., $4.75.

Mining engineer, May 1961, p.604. 1⅞ col.

"A most practical . . . [book] and collects in one volume much material on vibrations caused by the detonation of explosives . . . Does not confine itself purely to vibrations, but gives a very fine outline of the factors involved in the process of blasting rock . . . A valuable book for any engineer who has to do surface blasting in quarries or construction work, but it is also of interest to mining engineers who may be operating in areas close to property on the surface . . . Will also be of use to insurance inspectors and backs up the work and knowledge already available in this country in repudiating spurious claims which may be made, because the sound of blasting can be heard over a wide area." *Robert Westwater.*

Leigh-Dugmore, C. H.

Microscopy of rubber. 72p. 1961. Heffer, London, $4.25.

Rubber age, May 1961, p.338. ⅝ col.

"This monograph, prepared as a short summation of the ways in which microscopy can be used in rubber science and technology, is essentially a survey of work done in the field over the past fifty years. This breadth of scope, the numerous research reports available for reference, and the imposed brevity distinctly limit the amount of specific information the volume contains . . . Not intended as a handbook of rubber microscopy but rather an introduction to the potentials of the field . . . Following a brief historical survey of microscopy in rubber research, the author outlines the available techniques for examining specimens; a chapter on inspection of polymers and compounded materials, and a concluding chapter on the properties of rubber comprise the work."

Lencastre, A.

Manuel d'hydraulique generale; translated from the Portuguese. 412p. Editions Eyrolles, Paris, 40.62 N.F.

Civil engineering and public works review, April 1961, p.515. ⅝ col.

"Comprises chapters on physical properties and constants of water, hydrostatics, flow in pipes, losses in bends and orifices, flow in open channels, hydraulic jump, losses at channel discontinuities, hydraulic measurements, and a last chapter on pumps and pumping stations. In some of these chapters the treatment goes slightly beyond what is usual in English textbooks for under-graduates. One of the main

interests of this book is the tables and diagrams at the end of the book (pages 218 to 398, or nearly half of the book!) . . . Definitely an interesting publication, within the limited framework chosen by the author." *C. J.*

Lent, Deane.
Analysis and design of mechanisms. 328p. 1961. Prentice-Hall, Englewood Cliffs, N. J., $9.35.

Product engineering, April 24, 1961, p.100. ⅓ col.

"Written expressly for those who are beginning the study of mechanisms as a stepping-stone to machine design. The approach is elementary, developing the fundamentals of displacement, velocity, and acceleration and applying these to both the analysis and design of mechanisms. The author takes nothing for granted, always showing the reader 'how' and telling him 'why.' Fundamental principles are stressed throughout, providing a thorough grounding in basic methods and techniques having universal application . . . There is a minimal use of mathematics; graphics is used extensively wherever calculations would be slow or too complex."

LePage, Wilbur R.
Complex variables and the Laplace transform for engineers. 464p. 1961. McGraw, New York, $12.50.

Proceedings of the IRE, May 1961, p.980. 1 col.

"Well suited for classroom instruction as well as self-study . . . The task of writing a mathematics book for engineers is not an easy one. The author, a well-known scientist and teacher, has done a good job in finding a balance between the dry, rigorous presentation in mathematics books and the often too heuristic presentation in engineering books. The mathematical ideas are lucidly presented in the easily-read text with its well-chosen illustrative figures . . . The bibliography contains many good references." *E. Folke Bolinder.*

Lister, Raymond.
Craftsman engineer. 179p. 1960. Bell, G., London, 15s. net.

Mechanical world, May 1961, p.189. ⅓ col.

"Intended as a general guide for boys who wish to become engineering apprentices. Six trades are covered; those of blacksmith, machinist, foundryman, sheet-metal worker, welder, and fitter. The work involved in each is described in simple terms and the would-be apprentice is told what tasks he will be expected to do. Without playing down the hard work involved the author shows the satisfaction and pleasure to be obtained by a craftsman in the various branches of engineering."

McEntee, Howard G.
R/C primer; radio control for all. 66p. 1961. Kalmbach Pub. Co., 1027 N. Seventh St., Milwaukee, Wis., $2.

Radio-electronics, June 1961, p.108. ½ col.

"Aimed at the beginner, the book starts with information on obtaining a Citizens-band license, describes and explains the various control devices, components and linkages, then tells the reader how to install his equipment. The electronics of the equipment is covered only generally, the reader being advised to build his receivers and transmitters from kits or buy them complete. Field testing and maintenance are given considerable space . . . Well printed on excellent paper, and the interesting illustrations are superlative, both as to line drawings and photographs." *F. S.*

McGonnagle, Warren J.
Nondestructive testing. 455p. 1961. McGraw, New York, $15.

Tool and manufacturing engineer, May 1961, p.241. ⅜ col.

"Brings together both the practical methods in use today and the scientific principles upon which they are based. Written to help orient the beginning student and technician in the field, it contains a wealth of information covering visual testing, pressure and leak testing, liquid penetrant inspection, thermal methods and dynamic testing. Thickness measurement, X-ray and gamma radiography, ultrasonics and magnetic, electric and eddy currents—these also are categorical methods given extensive treatment. In treating the field as a technology based on applied physics, special attention is placed on work in the area of atomic energy."

Mackinnon, L.
Textbook on light at an introductory level. 344p. 1961. Longmans, New York, $3.75.

Engineering materials and design, May 1961, p.312. ⅔ col.

"An excellent introduction to the nature of light, reflection and refraction, and an account of the history of the measurement of the velocity of light. Photometry is dealt with, and there are well-arranged sections on diffraction and interference, and the elements of polarisation phenomena; also a brief account of optical spectra. The chapters on geometrical optics cover the basic theory of lenses and mirrors from a study of wavefronts, and lead to an introduction to the simpler optical instruments . . . Altogether, a pleasing book, easy to read, which attains its object of providing a bridge between the spoon-fed optics of the classroom and the lectures of the university." *J. W. Gates.*

Mallinson, George G., and others.
General physical science. 628p. 1961. McGraw, New York, $5.84.

School science and mathematics, May 1961, p.397. ⅞ p.

"Presents an entirely new approach in high-school general physical science . . . Designed to emphasize the knowledge and use of matter and energy resources by man, rather than being organized around the areas of geology, astronomy, chemistry and physics as generally treated in a course of this kind . . . Written for use in a course . . . that is to serve two functions, namely, to provide a general background for those students who will not major in science, and to provide a background in physical science for those students who will later take courses in physics and chemistry. This textbook will serve both functions well. It is the opinion of this reviewer that this is an excellent textbook." *J. Bryce Lockwood.*

Mandl, Matthew.
Fundamentals of electronics. 574p. 1960. Prentice-Hall, Englewood Cliffs, N. J., $10.60.

Electronic technician, May 1961, p.70. ⅔ col.

"The title . . . precisely defines what it covers; an analysis of basic electronics . . . An excellent book for beginners or techs wishing to review fundamentals . . . Clearly written and includes many photos, schematics and charts. Each chapter concludes with review questions as a self-learning aid."

Merory, Joseph.
Food flavorings, composition, manufacture, and use. 381p. 1960. Avi, Westport, Conn., $12.50.

Food technology, April 1961, p.18. 1 col.

"As the author states in his introduction, 'The literature in regard to food flavorings has been very meager during the last 50 years. Formulas and preparation of food flavorings have been kept under severest secrecy everywhere.' This book is an effort by the author to bridge this gap and provide the practicing manufacturing chemist, food manufacturer, and allied workers with a compendium of food flavor formulations. In effect, this book is a manual devoted to the development, manufacture, and use of many kinds of food and beverage flavors, both natural and artificial . . . The rather high price . . . may make it prohibitive for students to purchase, but the book will doubtless be of considerable help and value to many food manufacturers who have been looking for a convenient source of food flavor formulas and methods for their manufacture and use." *Richard A. Bernhard.*

Perfumery and essential oil record, April 1961, p.248. 1⅝ col.

"The literature on the subject of flavours is so scanty that the appearance of a new book on the subject will be eagerly examined by all technicians who use flavours in any form or who are concerned in the manufacture or formulation of these bodies . . . Worth a perusal for the fact that it may convey to the English reader the American method of approach to the formulations of flavours, but the flavour chemists will still feel that this volume only makes a small contribution to the subject . . . and that the real first class and comprehensive book on the subject is long overdue. As an auxiliary volume on the compounder's shelf it is to be commended, but it cannot be said to be comprehensive in any way, being rather a contribution by the author to this vast field."

Meyer, A. B. See **Clepper,** Henry, & **Meyer,** A. B., ed.

Miczaika, G. R., & **Sinton,** W. M.
Tools of the astronomer. 294p. 1961. Harvard Univ. Press, Cambridge, Mass., $7.75.

Science, May 5, 1961, p.1416. 1⅝ col. including another review.

"Addresses itself to the non-professional reader, the college undergraduate, or the astronomy buff . . . Includes a discussion of the various kinds of detectors, of solar telescopes, and of the numerous auxiliary devices that are used in astronomy: the spectrographs, photometers, measuring engines, and so forth . . . Certain to be well received and widely used." *Armin J. Deutsch.*

Sky and telescope, May 1961, p.287. 1⅛ col.

"An excellent, detailed, but nonmathematical book which will be found useful to professional and amateur astronomer alike . . . Limitations of text length have restricted the contents to those techniques and instruments that are finding extensive modern application. Further, image tubes and rocket-borne, balloon-borne and satellite-borne equipment have been deliberately omitted. However, a remarkable number and variety of instruments are discussed. I found the 32 pages on radio telescopes especially interesting and informative . . . The authors have done a prodigious job in condensing and simplifying material from many widely separated sources." *John B. Irwin.*

Middlehurst, B. M. See **Kuiper,** Gerard P., & **Middlehurst,** B. M., ed.

Mikolajczyk, P., ed.
Electronic tubes and semiconductor elements. 2v. v.1. 1213p. 1960. Pergamon, New York, $20.

Electronic industries, May 1961, p.72. 11 l.

"This important reference work contains an exhaustive compilation of data on electron tubes and semiconductors in seven languages: English, French, Spanish, German, Polish, Russian and Italian, relating to all tubes manufactured throughout the world used in radio receivers and transmitters (up to 500 W of dissipated power) television and television equipment, computers, etc."

Mullin, J. W.
Crystallisation. 268p. 1961. Butterworth & Co., London, 60s.

Chemical age, April 15, 1961, p.625. ⅛ col.

"Aims at presenting a systematic survey of the more important aspects of crystallisation theory and practice. The first 100 pages are devoted to fundamental physico-chemical aspects of crystals, solubility, properties of solutions and phase equilibria . . . The chapter on mechanism of crystallisation . . . provides a clear account of essentials and is followed by a systematic assessment of various recrystallisation processes. Industrial methods are analysed in the chapters on industrial crystallisation, equipment and size-grading . . . Written from an admirably sound physico-chemical stand-point and . . . should materially assist the transformation of the art of crystallisation into a scientifically controlled process: it is a first-rate addition to the literature."

Chemistry & industry, April 22, 1961, p.501. 1½ col.

"Aim . . . is to bring about a more scientific approach to a subject of considerable industrial importance . . . Intended to serve process chemists and engineers, as well as students of chemical engineering and technology. The importance of the subject is obvious. Most sections of the chemical industry utilise crystallisation for production, purification or recovery of solid material . . . Extremely well written . . . Can be recommended unreservedly and would be suitable for a school library, but its price would probably rule that out." *T. A. Blake.*

Noebels, Henry J., and others, ed.
Gas chromatography. 463p. 1961. Academic Press, New York, $16.

Analytical chemistry, May 1961, p.64 A. ⅛ col.

"Contains proceedings of the Second International Symposium on Gas Chromatography held at Michigan State University in 1959 under sponsorship of the Instrument Society of America . . . In addition to the 34 papers presented, there is a bibliography on gas chromatography and a subject and author index. Typical of the topics covered are effect of flow rate, thereoretical considerations in large columns, solid support studies, column backflushing, ionization detectors, radio frequency discharge detector, readout systems, process control systems, recording systems, integrators, fraction collectors, discussions of new intruments, plus a wide variety of applications of this technique."

Nourse, Alan E.
Nine planets. 295p. 1960. Harper, New York, $5.95.

Sky and telescope, June 1961, p.353, 355. 1¼ col.

"The factual sections are very uneven in quality, and no more than a casual perusal indicates that the author has not always kept up with the most recent findings . . . An irritating feature . . . is that the reader is almost never told where information was obtained, nor is he given any indication where he could search further. For the most part, the speculative sections are more successful, and frequently the author's experience as a physician lends color to his statements . . . Although Dr. Nourse's speculations concerning life and general conditions to be found on our neighboring planets are interesting, unorthodox, and even provocative, the many shortcomings of the factual information it presents make . . . a book which has to be used with reserve and caution." *Ernest E. Both.*

O'Brien, Richard.
Toxic phosphorus esters. 434p. 1960. Academic Press, New York, $14.50.

Industrial chemist, April 1961, p.201. 1¼ col.

"The history of the discovery of the toxic action of the phosphorus esters is well set out in this book by Prof. O'Brian [sic] as is the work on the physiological activity and on the insecticidal activity; indeed although the subtitle indicates that the book is concerned with the chemistry as well as the biology of the series, the emphasis is very much on the physiological and biochemical side and there is, in the reviewer's opinion, insufficient attention given to methods of preparation or manufacture. However, much space is devoted to chemical reactivity such as hydrolysis, isomerization and so on which may have a bearing on the enzymic activity in the insect and mammalian systems . . . A most useful book which must be on the shelf of any progressive agricultural chemist." *M. A. Phillips.*

Orear, Jay.
Fundamental physics. 381p. 1961. Wiley, New York, $6.75.

Journal of applied physics, May 1961, p.965. ¼ col.

"Primarily designed for use as a text in a one-year course at the college level for students who have had little previous training in mathematics and science, but it should also be helpful to science majors learning college physics for the first time . . . Main emphasis is on the first principles or fundamental laws of nature upon which all science is based . . . Deals lightly with the topics of more applied nature which are traditionally also called physics . . . By restricting the book to 'fundamental physics' as opposed to 'applied physics' there are fewer topics, with the accompanying advantage that they can be treated with greater depth."

Pearl, Richard M.
Wonders of rocks and minerals. 64p. 1961. Dodd, New York, $2.95.

Earth science, June 1961, p.126. ⅝ col.

"An ideal book for the young collector and beginning student of rocks and minerals. Subject matter includes crystals, ores, metals, gems, meteorites and other phases of our mineral kingdom. Many helpful hints are given on how to build up a rock collection. Occurrence and classification of minerals are outlined simply but adequately for the beginner . . . Contains many fine illustrations and photographs. We highly recommend it for young people and beginners in mineralogy of all ages."

Perry, James Whitney.
Scientific Russian. Ed.2. 565p. 1961. Interscience Publishers, New York, $9.50.

Chemical engineering, April 17, 1961, p.238. 1⅜ col. including another review.

"An excellent text. Introductory lessons ease the student into familiarity with the Russian (or Cyrillic) alphabet by illustrating words that are similar to their English counterparts, and provide basic discussion of purely Slavic words. The chapters following cover various aspects of grammar and build up the student's vocabulary. Each lesson is well-presented, self-contained unit. Grammatical concepts are clearly explained and generously illustrated, and the discussion is followed by exercises. As is to be expected, a student would use this book by proceeding from lesson to lesson, and the presentation is more likely to nourish his interest than reduce it." *N. P. C.*

Peterson, Martin S.
Scientific thinking and scientific writing. 215p. 1961. Reinhold, New York, $6.95.

Canadian chemical processing, April 1961, p.120. 10 l.

"This author's approach is original in that he avoids preoccupation with the mechanics of style, and considers expository organization as a function of scientific thinking. The uses of traditional inductive reasoning in scientific thinking are explained, along with the special methods of representative sciences. The technique of objective criticism of one's own writing is explained. Models illustrating the review, and the journal article, the oral paper, the scientific essay, and the book review are analyzed."

Pfeiffer, Paul E.

Linear system analysis. 520p. 1961. McGraw, New York, $12.50.

Proceedings of the IRE, April 1961, p.854. ½ col.

"There is no doubt that this text is an excellent one for a formal course directed to discrete parameter time variant linear systems . . . It is rather difficult to appraise the value of a formal textbook to the practicing engineer who wishes to sit down and 'learn' something from it. This book seems to be above average in this respect since the author relies extensively on physical examples which are usually close enough to the world of practical engineering to be meaningful. This reviewer has 'learned' from this book about subjects in which he was either behind the door or behind the times at school. Others are sure to be similarly successful." *R. P. Burr.*

Product engineering, May 8, 1961, p.55. ⅜ col.

"Because it is intended chiefly as an undergraduate text, this book can serve as an introduction to the theory and methods of linear-system analysis for engineers whose advanced math has gotten a little rusty. The author has thoughtfully provided refresher courses in all those phases of mathematics, beyond calculus, needed to understand the theory of linear systems . . . The person who is prepared to work at a more advanced level may find Chapter 8 ('Some Mathematical Properties of the LaPlace Transformation') and Chapter 9 ('The Transfer Function') of interest. In particular, Chapter 9 wraps up a great deal of the important theoretical development of discrete-parameter time-invariant linear systems."

Pough, Frederick H.

Field guide to rocks and minerals. Ed.3. 349p. 1960. Houghton, Boston, $4.50.

Earth science, June 1961, p.126. ⅜ col.

"This new edition contains 72 more colored photographs of rocks and minerals than did the preceding, making a total of 149 in full color. These are a great aid to the beginner when he is trying to identify his specimens. Along with each color photograph, as well as with the black and whites, are given a diagrammatic sketch of the crystal shape of the mineral, and a description of its physical properties, composition, identification tests, distinguishing characteristics, etc. To further aid in classification, the author groups all minerals of the same chemical type together, such as the carbonates, sulphides, oxides, halides, etc . . . We predict the good repute of Dr. Pough's Guide will be further enhanced by the current edition."

Putley, E. H.

Hall effect and related phenomena. 263p. 1960. Butterworth & Co., London, 50s.

Electronic engineering, April 1961, p.246. 1½ col.

"Dr. Putley, himself a substantial contributor to the subject, has performed a valuable service in collating the scattered literature of the subject . . . Preface states that, although the book was based on an article published in the TRE Journal . . . [the author] has endeavoured to bring the original article up-to-date with extensive discussions on magnetoresistance, thermoelectric and other galvanomagnetic effects. It is the opinion of this reviewer that he has succeeded in his object . . . A few errors have crept in . . . However, these faults are slight blemishes on an otherwise excellent work and it is believed that this book will have a special appeal, not only for the many workers concerned with semiconductor research and development, but will also serve the needs of those in other branches of solid state physics and be of great interest to honours students." *E. Cohen.*

Rare earth elements. 356p. 1960. Israel Program for Scientific Translations, Jerusalem, Israel, 78s.

Chemical age, April 8, 1961, p.583. ⅜ col.

"A conference on the rare earth elements was held in the Moscow Academy of Sciences in 1956. The 42 papers, which deal with separation techniques, analyses and a few examples of the practical uses of these metals, were published in book form by the Russians in 1959 . . . In spite of the time which has elapsed since the conference, much of this book is of sufficient worth for recommendation to the libraries of universities, advanced technical institutes and to those industries concerned with the lanthanides."

Reilley, Charles N. See **Advances** in analytical chemistry and instrumentation.

Ribeiro, L. P., and others.

Paper electrophoresis. 463p. 1961. Van Nostrand, Princeton, N. J., 72s.

Chemical age, April 15, 1961, p.625. ⅜ col.

"After a short introduction, the theoretical considerations of electrophoresis are covered by 16 pages, methods and apparatus by 23 and protein determination by 21, before the authors consider the very extensive literature under specific headings . . . Text is supported by a list (alphabetical by authors' names) of some 3,226 references, and 21 pages of subject index. Most of the chapters read like reviews—the text almost overflows with information. The 140 illustrations are clear and useful and the printing and paper is of high quality . . . Should provide a general reference for electrophoresis of interest to many."

Richards, Cedric W.

Engineering materials science. 546p. 1961. Wadsworth Pub., San Francisco, $8.50.

Design news, April 10, 1961, p.149. ⅜ col.

"Presented from an engineering point of view, this book offers comprehensive coverage and a valuable modern view of materials science. Intent . . . is to prepare the engineering student and to help the working engineer make the most effective use of materials available. Part I . . . gives General Principles, including structure of solid materials. Part II discusses Mechanical Behavior, including ordinary static loads, combined stresses and notch effect, dynamic loads, high and low temperatures, fatigue and hardness. Physical Behavior is the subject of Part III and covers the physical basis for the common electrical,

magnetic and thermal properties. The general pattern . . . is to discuss the general, then the specialized, aspects of materials and their applications."

Rochman, A.

Introduction to nuclear power costs. 50p. Simmons-Boardman, New York, $2.95 unbound.

Power, May 1961, p.180. ¼ col.

"Analyzes some factors making up the total cost of nuclear power, shows how variations in their value may affect the overall cost structure. Costs of the various factors related to nuclear fuels are first analyzed and then factors related to the capital structure, plant and equipment. Cost of services needed by the industry, costs which do not exist or are not of critical importance in conventional plants are also analyzed. Study winds up with the major cost factors, total fuel cost and capital cost of the nuclear reactor."

Rollason, E. C.

Metallurgy for engineers. Ed.3. 392p. E. Arnold, London, 20s.

Metal industry, April 28, 1961, p.339. ⅔ col.

"New material includes brief outlines of techniques such as zone refining, methods of revealing dislocations, new techniques of steelmaking, and details of die steels, magnets and high tensile steels. A number of additions has [sic] been made to the data on precipitation hardening of stainless steels and the treatment of cast irons . . . Should be worthy of a place on the shelves of all engineers, and not a few metallurgists, who need a comprehensive but concise outline of the metallurgical principles and techniques involved in the fabrication and semi-fabrication of the major metals in commercial use at the present time."

Rose, M. E.

Relativistic electron theory. 272p. 1961. Wiley, New York, $9.50.

Proceedings of the IRE, May 1961, p.981. ⅔ col.

"Opens with a concise review of the nonrelativistic quantum theory of a spinning electron. This is followed by a thoroughgoing account of the relativistic quantum mechanics of a free particle, of a particle in an electromagnetic field, and of a particle in a central field. Problems which can be solved exactly, as well as some which can be solved only approximately, are carefully and lucidly discussed. There is an up-to-date account of neutrino theory and of the non-conservation of parity. Included . . . are a number of useful problems, an adequate set of references to the original literature, and some worthwhile appendixes on items such as the Lorentz transformations . . . Highly recommended to all scientists who have the mathematical and physical background necessary to appreciate a work of this kind." *Frank Herman.*

Runcorn, Stanley Keith, ed.

Methods and techniques in geophysics. v.1. 374p. 1960. Interscience Publishers, New York, $10.

Economic geology, March-April 1961, p.453. ⅓ p.

"The Editor felt that while much literature has appeared on observational data in pure geophysics and theories about the interior of the earth no comparable literature concerning the modern advances in physical techniques has appeared. Thus the purpose of this book. Thirteen authors have participated—five from England, five from Canada, and three from the United States. Ten papers make up the volume . . . Each paper takes up the instruments involved and how they are utilized, the various methods of measurement, the principles involved, and the results. The coverage is quite complete . . . Should prove to be a valuable reference to all theoretical and practicing geophysicists, and to geologists."

Sackheim, George I.

Physics calculations. 267p. 1960. Macmillan, New York, $3.50 unbound.

Physics today, April 1961, p.62, 64. ½ col.

"Purpose . . . is to help the student solve problems by showing him how to conquer the two main difficulties usually encountered: how to link the theoretical principles with the different types of problems, and how to handle the units so that the answers appear with the proper unit. The points where difficulties might arise are duly stressed . . . The whole field of general introductory physics is covered . . . The general level is that of a first course, but a few non-elementary topics are included (e.g., reverberation of sound in a room). Four-place logarithms and trigonometric tables make the book self-contained." *Jacques Romain.*

Schlitt, H.

Systemtheorie für Regellose Vorgänge. 344p. 1960. Springer, Berlin, DM 49.50.

Electronic engineering, April 1961, p.245. ⅔ col.

"The princples of the statistical signal theory as applied to the description of stachostical events are discussed in detail in this book, and a fusion with the classical system theory leads to the posing of questions characteristic to this modern field. It is hoped that the book will contribute to the closing of the gap which existed for years in German publications on statistical methods. Its broad layout addresses itself particularly to engineers, physicists and students in their later years of study, who are engaged in the analysis and synthesis of transmission and control problems in the fields of communications, control engineering, information theory and the study of communications."

Schumann, H.

Metallographie. Ed.3. 612p. 1960. VEB Deutscher Verlag für Grundstoffindustrie, Leipzig, Germany, DM 38.

Acier stahl steel, March 1961, p.139. ⅙ col.

"The third edition of Dr. H. Schumann's important book dealing with this very specialised field of technology; microscopic metallography. The author has revised his book to take account of the progress achieved in his branch of science since the publication of the second edition, and he has taken the opportunity to include more diagrams and photographs, thus enhancing the direct instructional value . . . In it, all the usual subjects dealt with in text-books of metallography are surveyed by a well-informed expert who never loses sight of the practical side of his subject, because his

book is also intended for metalworks engineers and specialists, providing them with the basic technical information for gaining a better knowledge of the materials produced."

Scroggie, Marcus Graham.
Fundamentals of semiconductors. 160p. 1960. Gernsback, New York, $2.95 unbound.
QST, April 1961, p.35. 10 l.
"A good beginner's book, yet detailed enough for the technician already familiar with the basic theory of semiconductors. Beginning with the atomic theory, the book works its way through energy and matter to junctions, diodes and rectifiers, transistors, photocells and other semiconductor devices . . . Explains theory and discusses the development, functions and possibilities of semiconductors. Also, described are some of the latest semiconductor devices, such as thermistors, varistors, masers, mavars, and tunnel diodes."

Sells, Saul B., & **Berry,** C. A., ed.
Human factors in jet and space travel. 386p. 1961. Ronald, New York, $12.
Aerospace, April 1961, p.8. 12 l.
"A comprehensive text and sourcebook on the human-factor aspects of space travel. Deals with the aero-medical problems introduced by high speed and high altitude flight. Discusses the solutions to many of the knotty problems in space medicine and analyzes the areas in which further research is necessary with possible approaches to these future problems."

Shields, Carl D.
Boilers; types, characteristics, and functions. 550p. 1961. Dodge, New York, $15 unbound.
Plant engineering, May 1961, p.214. ⅔ col.
"This book has much to offer in the way of information on boilers. Many facets have been considered in the preparation of this book which incorporates the practical approach. Material . . . pertains to many types of boilers and takes in the treatment of units for various areas of usage. The main text is divided into seven principal sections, namely boiler classification, boiler design, steam generating equipment, boiler construction, industry regulation, and industry status."

Sienkiewicz, Julian M.
Vacuum-tube circuits for the electronic experimenter. 192p. 1961. Ziff-Davis, New York, $4.95.
Popular electronics, May 1961, p.28. ⅓ col.
"At last, in one book, experimenters can find almost all the basic diagrams, schematics, and other vital information they will ever need on vacuum tubes and their circuits. Beginning with the Edison effect (the birth of the diode), the author leads the experimenter right up to the multi-element vacuum tubes used today. Vacuum-tube circuit design is described in understandable, down-to-earth language. With this book, plate resistance, transconductance, gain, load lines, characteristic curves, and the like will no longer be mysterious terms but useful ones. Some 100 illustrations are included."

Simonds, Herbert R.
Source book of the new plastics. v.2. 310p. 1961. Reinhold, New York, $8.95.
Modern plastics, May 1961, p.258. ¼ col.
"Essentially a status report on the progress made in the development of new materials, this book is an up-dated version of its predecessor, Volume I. Included are reports on 69 companies and new products being offered . . . Also covered in highlight fashion are advances in polymer technology, government research, and market information. Major value . . . lies in having all the information summarized in one place . . . Of general interest to anyone wanting to be kept up-to-date on material developments in the plastics industry and on who's doing what." *G. R. S.*

Simpson, George Gaylord.
Principles of animal taxonomy. 247p. 1961. Columbia Univ. Press, New York, $6.
Science, May 19, 1961, p.1589. 3⅛ col.
"In spite of . . . criticisms, it is my sincere opinion that this book marks an important advance in taxonomic theory. The result of mature experience in the taxonomy of both fossil and living mammals, it represents a fine scholarly approach to a science that is essential to all comparative biology. Even its ambiguities and inadequacies will set the stage for more critical tests of important hypotheses and interpretations in the near future. All biology will progress as the result of the balanced integration of modern taxonomy within the life sciences." *Alfred E. Emerson.*

Smith, Cyril Stanley.
History of metallography. 291p. 1960. Chicago Univ. Press, Chicago, $8.50.
Metal industry, March 31, 1961, p.251. 1 col.
"The author . . . is . . . a craftsman and his book has been prepared with all the care and attention to detail that would be expected from one so talented. The title does not disclose that here is a 'classic' of information on all those aspects of metallography little known to present day metallurgists. One volume, well illustrated, expertly presents the entire story of metal science up to the year 1890 . . . [Recommended] to all those who value quality and originality in their scientific reading . . . Will not assist in breaking any modern production records, but it will be deeply satisfying to those metallurgists with the desire and capacity to enjoy reading an account of all that pioneered our skills in metallographic study." *P. E. W.*

Sorenson, Wayne R., & **Campbell,** T. W.
Preparative methods of polymer chemistry. 565p. 1961. Interscience Publishers, New York, $10.50.
Chemical & engineering news, May 8, 1961, p.60. 1⅞ col.
"Contains much that will be of interest . . . to the expert in synthetic polymer chemistry, harassed as he is in his unsuccessful efforts to keep up with the ever increasing flood of world-wide patents on new polymers and polymerization techniques, real and fancied. Faced with the job of making practical sense out of the weird polymerization procedures devised

by the research worker, the process development chemist or engineer in industry will find in the book much general background and the reassurance that even weirder things have been done. The university student of organic chemistry can find in the book an introduction to polymerization, described in terms with which he is familiar; he may thus break the barrier of awe in which this field is held in many graduate schools." *F. X. Werber.*

Spain, Barry.

Analytical quadrics. 135p. 1960. Pergamon, New York, 30s.

International journal of mechanical sciences, April 1961, p.316. ¼ p.

"A very good book on three-dimensional geometry suitable for a student who needs to reach a high standard in pure mathematics, though not, perhaps, for the pure mathematician who should base these results on the broader projective picture . . . A major criticism is that vector methods are not used in the early chapters. Students at this standard have many reasons for thinking vectorially, and the formulae for lines and planes become obvious when considered as scalar and vector products. The introduction of vector methods need not have made the book longer because some of the results proved in the text could have been left as easy exercises for the reader." *H. B. Shutrick.*

Stanton, Ralph G.

Numerical methods for science and engineering. 266p. 1961. Prentice-Hall, Englewood Cliffs, N. J., $9.

Design news, May 8, 1961, p.160. ⅔ col.

"A text book rather than a work of reference . . . Intended for students with the usual engineering background, including the usual courses in differential and integral calculus. The author . . . stresses groundwork and fundamentals rather than sophisticated solutions. He shows more than 100 solved numerical examples . . . The concluding chapter leads to actual programming of problems for a digital computer, but all other chapters can be handled with slide rule or disc calculator."

Steinkohlenbergbauverein, ed.

Der Deutsche Steinkohlenbergbau. v.4. pt.1: Aufbereitung der Steinkohle. 407p. 1960. Glückauf, Essen, Germany, DM 96. (Technisches Sammelwerk.)

Mining engineer, April 1961, p.512. 1⅓ col.

"The first of two [volumes] dealing with coal preparation; it is claimed that together these two volumes will constitute the first synoptic review of coal-preparation theory and technique to appear in Germany since Schennen and Jüngst issued their text book in 1913 . . . The treatment . . . is concise and practical throughout; the book contains very little theoretical discussion, with only brief allusions to costs when dealing with certain methods or installations. (One entire section of the succeeding volume in this series, now in preparation, is devoted to costs, plant control and determination of efficiency.) Numerous tables of operational results are included, and the brief descriptions of the various types of plant are in almost every case supplemented by line drawings." *Alan G. Readett.*

Teodorovich, G. I.

Authigenic minerals in sedimentary rocks; translated from the Russian. 225p. 1961. Consultants Bureau, New York, $22.50.

Mining engineering, April 1961, p.335. ½ col.

"Designed to rouse lithologists and geologists into taking an interest in the geochemical environment associated with the formation of authigenic minerals in sedimentary rocks; to encourage work in tracing the sequence of formation of these minerals; and to direct attention to other genetic problems. In addition to dealing fully with questions of the origin of authigenic minerals in sedimentary rocks, this volume provides the reader with a systematic knowledge of the physical and optical properties of such minerals. The simplified chemical reactions indicated in the book make it easier to distinguish similar materials and also to detect various mineral deposits in the field."

Thomas, Trevor M.

Mineral wealth of Wales and its exploitation. 248p. 1961. Oliver, Edinburgh, 30s.

Mining engineer, May 1961, p.605. 1⅓ col.

"Whilst the book does not add new scientific facts or contribute materially to existing knowledge, it has the merit of bringing together a wide array of information hitherto isolated. This is doubtless very useful, and serves as a starting point for more detailed study and investigation by interested persons. This is the primary aim . . . and in this aim the author has succeeded . . . Well written, and illustrated by a great number of text-figures which include useful small maps . . . A pleasing and informative book to read and should appeal to a wide range of readers, both as a source of general and specific information." *Leslie R. Moore.*

Thorpe, W. H., & **Zangwill,** O. L., ed.

Current problems in animal behaviour. 424p. 1961. Cambridge Univ. Press, London, 45s.

Discovery, April 1961, p.171. 1⅘ col.

"This book arose out of a series of discussions at Cambridge over a period of years, 1953-8, between zoologists concerned with animal behaviour and psychologists . . . Fourteen members of the discussion group prepared papers on topics of interest in the study of behaviour as a whole, each contributor choosing his own subject. These papers were then read and discussed by the group before being drafted in their final form for publication. While such a method cannot produce an even coverage of the whole field of animal behaviour, this is no criticism of a book which fully justifies its modest title. It is only regrettable that the essays, which were written three or four years ago, should not have been published until now." *J. M. Cullen.*

Timoshenko, Stephen P., & **Gere,** J. M.

Theory of elastic stability. Ed.2. 541p. 1961. McGraw, New York, $15.

Product engineering, May 15, 1961, p.235. ½ col.

"An extensively rewritten version of the

established text and reference work, first published in 1936, this book presents the fundamental theory of buckling of bars, plates and shells. The new second edition brings the subject matter up to date. Some of the significant changes . . . are in the treatment of torsional buckling of columns and lateral buckling of beams. But the emphasis, as in the first edition, is on fundamental theory."

Waeser, Bruno.

Die Schwefelsäurefabrikation. 488p. 1961. Vieweg, Braunschweig, Germany, DM 76 net.

CPE and atomic world, April 1961, p.189. ⅞ col.

"Lunge's classic on sulphuric acid manufacture has dominated the entire literary field on that subject for close on a century. It is therefore inconceivable that any new book on this subject, especially if it is German, will deviate from the Lunge tradition. This recently published treatise on sulphuric acid manufacture only claims to be a revised, up-to-date version of the 'Handbook of Sulphuric Acid Manufacture', which first appeared in 1930 . . . Sulphuric acid manufacture is probably the oldest branch of the modern chemical industry; it is also the most vital part of this industry. The authors of this treatise must therefore be congratulated on having compiled another all-embracing treatise which does credit to the German tradition in this field." *I. L. H.*

Waterman, H. I., and others.

Process characterisation. 137p. 1960. Van Nostrand, Princeton, N. J., 38s. net.

CPE and atomic world, April 1961, p.188. 1½ col.

"A disadvantage felt by this reviewer is that the content . . . is not quite balanced, because it contains too much material which has no direct bearing on the actual subject, nor is any relation indicated . . . It is felt that the presentation lacks a critical examination on the validity of the equations for general application, especially with respect to a criterion as to the choice of the three components. Based on the necessary additivity of a property of the three components to be chosen, such a criterion can be established. The book is useful for research workers. It would have been more convincing had the authors restricted themselves strictly to a discussion of the actual subject, particularly to that of the correlation of chemical process data. The presentation meets high standards." *P. M. Heertjes.*

Webb, M. B. See **Harrison,** W. A., & **Webb,** M. B., ed.

Young, Roland S., ed.

Cobalt; its chemistry, metallurgy, and uses. 424p. 1960. Reinhold, New York, $15. (American Chemical Society. Monograph series, no.149.)

I/EC, May 1961, p.75 A. 1⅛ col.

"The editor . . . has done an excellent job in bringing together in one volume information on recovery and uses of cobalt which was hitherto available only at the expense of long and tedious literature research . . . One very valuable feature . . . is the exceptionally thorough documentation given to each chapter . . . Contains over 1400 references to published literature, which greatly increases its value as a reference work. The only fault . . . and it is not a serious one, is that it seems to be somewhat unbalanced. Most of the chapters are quite short, and . . . the impression is gained that many of them could easily have been expanded . . . It is very difficult to avoid this type of unbalance however . . . where individual chapters are contributed by a number of authors." *Joseph H. Bilbrey.*

Mining engineering, April 1961, p.344. ¼ col.

"Replaces Monograph No. 108, Cobalt, written by Mr. Young who, as editor of this new monograph, contributes sections dealing with the history, occurrences, extractive metallurgy, chemical and physical properties, compounds, metallurgical applications, and biology and biochemistry of cobalt. Other sections, also written by specialists, summarize the newer developments in cobalt technology."

Zangwill, O. L. See **Thorpe,** W. H., & **Zangwill,** O. L., ed.

Zeiss, Harold Hicks, ed.

Organometallic chemistry. 549p. 1960. Reinhold, New York, $17.50. (American Chemical Society. Monograph series, no.147.)

Chemical age, March 18, 1961, p.460. ½ col.

"The growth of interest in organometallic compounds has been one of the few outstanding developments in chemistry in the last ten years. Dr. Zeiss has been notably successful in persuading many of the chemists most intimately concerned with the development to contribute chapters . . . Altogether this is an outstanding book which will be an essential purchase for all libraries. The publishers claim that this is the first major work in organometallic chemistry in over a decade. This is untrue; Coate's excellent book on organometallics, which is incidentally far better value for money, was noticed a few weeks ago in these columns."

Journal of the Franklin Institute, April 1961, p.306. 2 col.

"One of the best monographs to come out of this series . . . The field of organometallic chemistry is an interdisciplinary area, fortified recently by novel approaches on different fronts. It is very satisfying to see so many of these recent advances reviewed in one book by the scientists most responsible for the advances. Editor Zeiss, after selecing his very outstanding authors, has wisely made no attempt to equate the styles of presentation, so that each chapter truly reflects the views of the scientists at the center of the field and allows the readers to follow the rational development of the subject." *S. B. Mainthia.*